Revision number: Purchasing Agent: DEBBIE GUNDERSEN

Item: 3 LINE CHANGEABLE MESSAGE INFORMATION SIGN

Vendor: 29740H A WESTERN SIGNAL INC.
1300 CARR ST.
LAKEWOOD CO 80215

Internet Homepage:	www.westernsignal.com
Telephone:	303 462-2530
Fax number:	303 462-2533
Contact:	STEVE O'CONNOR
Email address:	westernsig@aol.com
Brand/trade name:	
Price:	SEE ATTACHED PRICE LIST
Terms:	NET 30
Effective dates:	05/15/01 THROUGH 05/15/03
Days required for delivery:	60 DAYS ARO
Price guarantee period:	ONE YEAR
Minimum order:	ONE UNIT
Min shipment without charges:	
Other conditions:	NO RENEWAL OPTIONS

THIS IS A NEW CONTRACT. - REPLACES PD327

THIS BID RESULTED FROM BID # DG1188.
THIS CONTRACT COVERS ONLY THOSE ITEMS LISTED IN THE PRICE SCHEDULE. IT IS THE RESPONSIBILITY OF THE AGENCY TO ENSURE THAT OTHER ITEMS PURCHASED ARE INVOICED SEPARATELY. STATE AGENCIES WILL PLACE ORDERS DIRECTLY WITH THE VENDOR (CREATING A PG IN FINET) AND MAKE PAYMENTS FOR THE SAME ON A PV REFERENCING THE ORIGINAL PG. AGENCIES WILL RETURN TO THE VENDOR ANY INVOICE WHICH REFLECTS INCORRECT PRICING.

1- 3 LINE CHANGEABLE MESSAGE INFORMATION SIGN POST MOUNTED WITH CONTROLS & SOFTWARE INCLUDING DELIVERY. @ $21,313.00/EA.

GENERAL DESCRIPTION

The purpose of this specification is to describe a unique CHANGEABLE MESSAGE INFORMATION SIGN (CMS) using the technology of Light Emitting Diodes (LEDs) in clusters. The clusters are assembled to form alpha-numeric modules. The modules form messages of three (3) lines. The Port of Entry also wants the option of purchasing a Two-Line sign based on these specifications with the ability to add a separate Third-Line.

The sign shall be controlled from either a central location via telephone lines, fiber optic lines, or by wireless communication. It shall also be controllable from a local point by means of direct communication.

The LED message(s) shall automatically adjust its light output by means of two (2) photo sensors installed in the housing; one on top and one on the side. The light output shall be proportional to the ambient light and unaffected by headlights. There shall be at least three levels of brightness between 100 % and 100% - 40 %

Vendor shall fabricate and deliver to ***The Utah Port of Entry***, fully operational changeable message signs as specified in detail below. Each sign shall include LED Modules, power supply and distribution, sign enclosure, photocells with logic control circuitry and all electronics and additional items for a complete sign.

Each sign shall meet the following general specifications:

The sign should be legible at a distance of 450 (four-hundred and fifty) feet.

The display will consist of three lines with a minimum of eight characters per line. The first two lines will be alphanumeric. The third line shall be a numeric weight display.

Character height shall be no less than 9 (nine) inches.

The sign shall be fully compatible and offer interchangeability with the Port of Entry's existing Changeable Message Signs. To meet this compatibility, the sign will utilize SYNCHRONEX control chip HTD 990501 Rev. 2

The message sign can be operated via hardwire connection, wireless connection, cell phone or alphanumeric pager.

Sign shall be capable of being completely blanked out, regardless of ambient lighting conditions.

The sign shall be functional over an ambient temperature range of –35 degrees C to 74 degrees C.

Each pixel shall be removable or replaceable on the module without the use of any tools other than a screwdriver.

Each LED module shall be comprised of pixels (clusters) having 10 each high output LEDs per pixel.

Sign display shall be total LED display with no moving parts. LED color shall be RED-590nm in Color. The LED's shall be equal in quality and performance to those produced by Hewlett-Packard Corp.

The design of this sign shall be a "Total Modular Concept" not requiring any preventative maintenance.

All components shall be the "daisy chain modules" type that can be removed with a minimal amount of tools i.e. a screwdriver pliers etc.

In case of malfunction, the defective module or an individual pixel of a module shall be easy to locate for immediate replacement. Defective modules can be replaced with spare modules in the field while the defective modules are returned to the manufacturer for warranty repairs.

Required on-site servicing time shall be minimal (less than 30 minutes) to prevent extended lane closures that could result in safety hazards and traffic disruptions.

All modular LED display components shall be "Solid State'.

The PC boards shall include a current limiting circuit for each pixel in each module in order to prolong LED life.

The sign shall be gasketed with a closed cell neoprene.

DISPLAY REQUIREMENTS

The display face shall have a minimum thickness of 2 mm.

The sign will utilize a two-tiered lens system consisting of 3/8'' flat black anodized aluminum 3/8" honeycomb hex cell louver having 95 % open area and providing 60 degree shielding to enhance resistance to sun phantom and to act as a visor.

Wireless or Hard-wired message controller for the sign shall have one key access to 10 pre-programmed messages.

Wireless or Hard-wired message controller for the sign shall have a capability of access to 99 preprogrammed messages, with a maximum of four keystrokes.

Additionally, the sign shall have an unlimited number of available user programmed messages.

Preprogrammed messages to be selected by a maximum of four keystrokes.

All control elements will be found in the sign and control pad. No additional computer will be required for operation or programming.

Each character will utilize an individual PC board/LED module to control its pixels.

There shall be no electronic components visible on the front of the display.

The face lens shall be made of 6-mm non-glare matte finish polycarbonate with UV resistant surface treatment. The lens shall have light transmission properties of at least 82%.

The display module shall have a multi-conductor cable with a "quick disconnect" type connector for easy removal.

ELECTRONIC REQUIREMENTS

The sign input power shall be standard 120VAC.

The sign shall be turned ON and OFF by means of 120 VAC, 60 Hz inputs. The LED messages shall be steadily lit when activated, unless otherwise specified.

The sign shall include lightning protection.

The drive module shall drive the LED's at a DC current not exceeding the maximum rating recommended by the LED manufacturer).

The drive module shall regulate the LED drive current to compensate for line voltage fluctuations over the range of 95 VAC to 135 VAC. The luminous output of the display shall not vary more than 10% over the voltage range and shall not be perceptible to the human eye.

The drive module shall be fused and include voltage surge protection to withstand high-repetition noise transients and low-repetition high-energy transients as stated in section 2.16 of NEMA Standard TS-2, 1992.

The on-board circuitry shall meet FCC title 47, sub-part B, section 15 regulations concerning the emission electronic noise.

The drive module shall be designed to maintain a constant LED drive current regardless of

outside temperature (-30 degrees C to +40 degrees C).

The drive module may be conformal coated.

All electronic components shall be standard industry type, available from wholesale electronics distributors.

The interconnect PCB shall include connectors for drive modules and display messages.

All interconnections within the RMS shall be accomplished through this PCB. No internal wiring shall be permitted with the exception of cables for the message display.

All connectors and terminals shall be labeled on the surface of the PCB.

All PCB's shall be mounted vertically to facilitate air-cooling and prevent collection of dust and moisture.

Power requirements for the LED's shall be a maximum of 8 watts per 100 LED's.

ILLUMINATION REQUIREMENTS

The LED chromaticity shall be RED-590nm in color.

The sign shall meet the following minimum luminous intensity in millicandela (mcd) with respect to the viewing angle from the centerline of the sign:

Dominant Waveform	**Minimum Luminous Intensity @ 20 ma**	**Viewing Angle**
CIE, x .31/7.32	6000 mcd	0 degrees
CIE, x .31/y.32	1300 mcd	15 degrees
CIE, x .31/y.32	450 mcd	30 degrees

The LED's shall be certified to have a luminous intensity degradation of not more than 20% over 100,000 hours of continuous use at 20 ma level.

The chromaticity shall remain unchanged over the input line voltage range of 95 VAC 135 VAC.

The RED LED's shall be of the latest AlInGaP Technology.

ENCLOSURE REQUIREMENTS

The sign shall utilize stainless steel latches for quick access to the sign's interior.

The finished sign shall have nominal dimensions of 65.25 inches in length; 38 inches wide and 5.50

inches deep and conform to section 86 of the California Enclosure specifications.

The sign shall be constructed so that a clear front panel shall be contained within an extruded .090 aluminum frame.

The enclosure frame shall be made entirely of extruded aluminum. The aluminum frame will have full welded seams and a powder-coated, black-painted finish to meet the color standards of Federal Spec. 595b, 17038.

The finished sign will weigh no more than 180 pounds when enclosed in a wooden shipping crate.

The rear side of the polycarbonate display face shall be protected by a back cover to seal and protect it from any possible damages.

The sign shall be vented on the bottom and/or provided with an interior ventilation fan.

The enclosure including all associated hardware, mounting assemblies, hexcel visors and related components, shall be aluminum or stainless steel.

All openings shall have gaskets or be sealed.

A circuit diagram shall be permanently affixed to the interior of the enclosure.

The LED sign housing shall be completely sealed against dust and moisture intrusion as per the requirements of NEMA Stand 250-1991 sections 4.7.2.1 and 4.7.3.2 for type 3 enclosures to protect all internal components.

The enclosure shall be constructed to assure all internal components are adequately supported to withstand mechanical shock and Vibration from wind ratings, meeting AASHTO's requirements of 80 mph with a 30% gust factor.

No self-tapping fasteners may be used on the exterior of the sign.

All mechanical fasteners shall be corrosion-resistant stainless steel.

All corner seams shall be "tig" (Tungsten inert gas) welded to their full length.

An Aluminum 3/8" hexcel honeycomb sheeting shall cover the entire face of the sign to act as both visor and blank out element.

Two (2) drainage holes shall be provided at the bottom of the housing. Drainage holes shall have screens to prevent insects from entering the sign body.

Two (2) air vents shall be installed on the sides of the housing; one vent shall be placed at the lower

left side and the other at the upper right side. Vents shall be designed to prevent rainfall from penetrating the housing and shall have replaceable filter material to keep the enclosure dust free.

OPTION 1: 3 LINE FULLY WIRELESS SIGN: @ $24,120.00

3 Line Changeable Message Information Signs post mounted, with controls and software and Full-3 Line Wireless Control (includes 2 pairs of wireless modems for control of all three lines of the changeable message sign).

OPTION 2: 2 LINE CHANGEABLE MESSAGE SIGN: @ $13,316.00

2Line Changeable Message Information Signs post mounted, with controls and software.

OPTION 3: RETROFIT 3RD LINE CHANGEABLE MESSAGE SIGN: @ $8,328.00

OPTION 4: WIRELESS CONTROL FOR CHANGEABLE MESSAGE SIGNS: @ $3,335.00

Wireless Control includes 1 pair of wireless modems. 1 pair of modems will control either the first two lines or the 3rd line.

REPORTS:
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THE CONTRACTOR WILL SUBMIT YEARLY REPORTS TO THE STATE PURCHASING AGENT SHOWING QUANTITIES AND DOLLAR VOLUME OF PURCHASES BY EACH AGENCY AND POLITICAL SUBDIVISION. THIS REPORT WILL BE DUE 05/15/02.

FINET COMMODITY CODE (S):

55088000000-TRAFFIC SIGNALS AND EQUIPMENT, ELECTRIC SYSTEMS